

# A SYSTEM AND A METHOD FOR CHECKING LOCK STEP CONSISTENCY BETWEEN AN IN CIRCUIT EMULATION AND A MICROCONTROLLER WHILE DEBUGGING PROCESS IS IN PROGRESS

## 5 ABSTRACT OF THE DISCLOSURE

A system and a method for checking the consistency of a lock step process while debugging a microcontroller code is in progress. A system where a production microcontroller is partially copied in an ICE, to form a virtual microcontroller, and the ICE, where the ICE is not connected to an I/O bus. The  
10 production microcontroller and the virtual microcontroller simultaneously and independently run a microcontroller code in a lock step for debugging. The method provides the production microcontroller to execute an instruction code and provides the result of the instruction code to the ICE. The ICE, independent from the production microcontroller and simultaneously, executes the same instruction  
15 code and produces a result. The ICE compares the result of its computation and the result received from the production microcontroller. The ICE issues a "lock step error" when the result of the comparison is a mismatch. A trace buffer residing in the host device provides the location of the line of code causing the mismatch. After identifying the line of code causing the mismatch the user debugs the  
20 erroneous line of code. The debugging process resumes on the next line of code in the microcontroller code under test.